

[54] **DETACHABLE PANEL ARRANGEMENT FOR A TAMPER PROOF ENGINE ENCLOSURE**

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- [58] Field of Search..... 52/127, 473; 180/89 R, 180/89 A, 69 R; 296/28 M, 28 R, 28 C; 220/9 G, 9 B, 44 R; 62/DIG. 3, DIG. 15, 259, 239; 98/99 R, 121 R, 42; 312/100, 265, 257
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[57] **ABSTRACT**

An engine enclosure comprises a support frame including an upright member having a pair of aligned panels attached thereto. The panels are attached to the member by support brackets and releasable fasteners disposed within the enclosure. A pair of doors, hingedly mounted on the frame, provide access to the fasteners.

6 Claims, 3 Drawing Figures

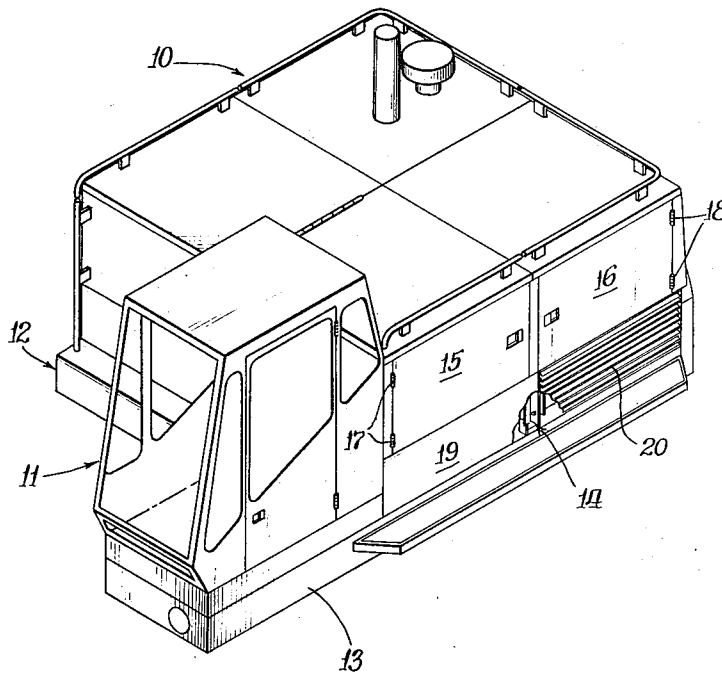


FIG. 1.

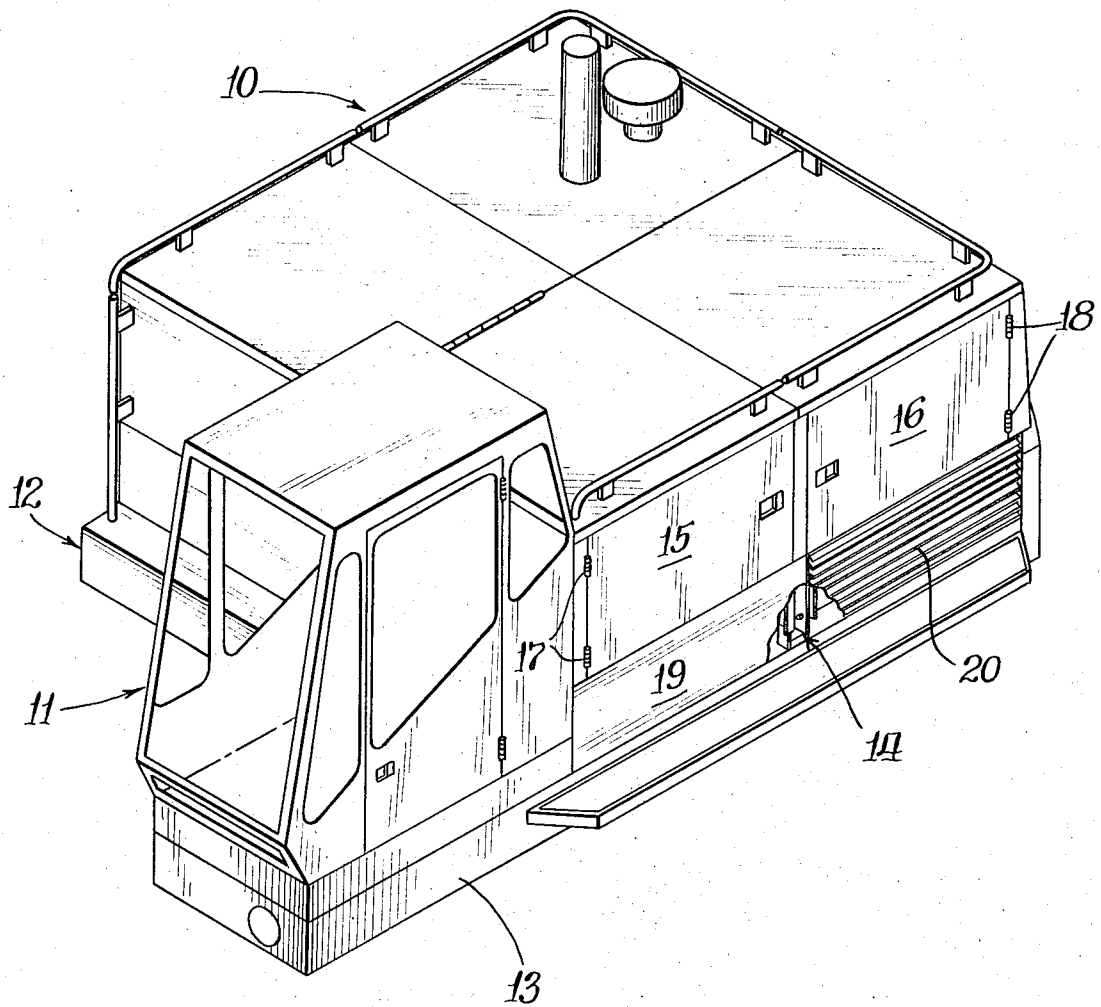


FIG. 2.

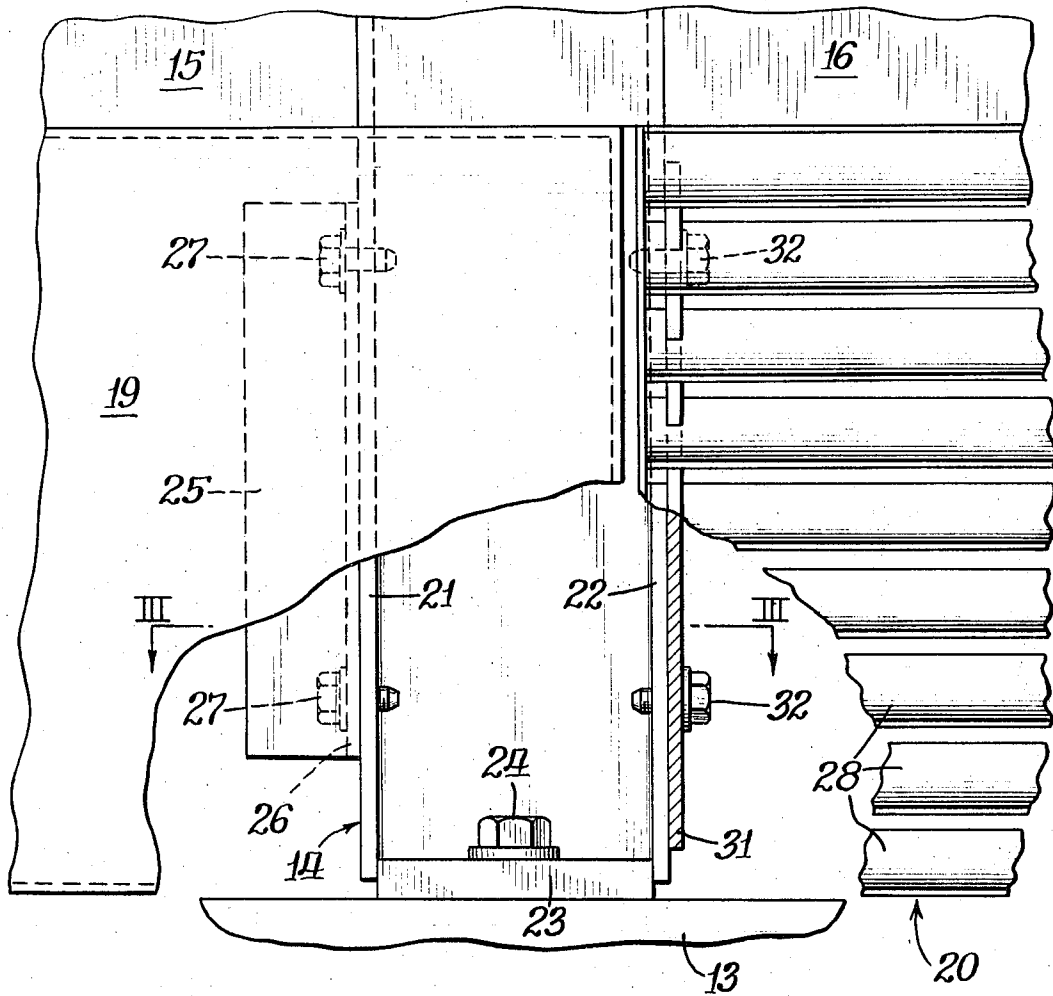
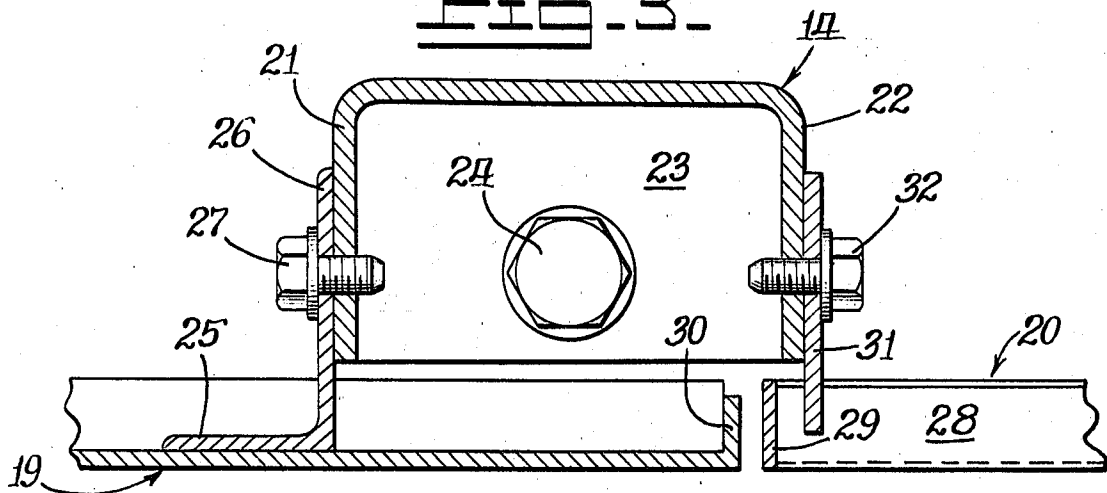


FIG. 3.



DETACHABLE PANEL ARRANGEMENT FOR A TAMPER PROOF ENGINE ENCLOSURE

BACKGROUND OF THE INVENTION

An enclosure normally protects the engine and related working components, mounted on a rotatable upper unit of a hydraulic excavator. Repair or replacement of such components oftentimes necessitates removal of the enclosure to gain access to such components. The removal procedure is laborious and time-consuming, resulting in considerable "down-time" for the excavator. Various proposals have been made to detachably mount enclosure panels on a supporting framework to facilitate expeditious exposure of the above-mentioned working components. Such panels are normally fastened to the framework by bolts or the like which are exposed exteriorly of the enclosure to thus subject them to tampering and inadvertent removal.

SUMMARY OF THE INVENTION

An object of this invention is to overcome the above, briefly described problems by providing an economical and non-complex tamper proof enclosure, adapted to be expeditiously opened to expose working components of a vehicle mounted therein. The enclosure comprises a frame, including a support member, and a pair of panels disposed on the frame to have their opposed ends positioned closely adjacent to the support member. Fastening means releasably attach the ends of the panels to the support member, interiorly of the enclosure, and openable access means are provided on the enclosure to selectively expose the fastening means to facilitate removal of the panels.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects of this invention will become apparent from the following description and accompanying drawings wherein:

FIG. 1 is an isometric view of an engine enclosure mounted on the upper unit of a hydraulic excavator and partially sectioned to expose panel attachment means of this invention employed therein;

FIG. 2 is an enlarged, side elevational view of the exposed panel attachment means; and

FIG. 3 is a sectional view of the panel attachment means, taken in the direction of arrows III—III in FIG. 2.

DETAILED DESCRIPTION

FIG. 1 illustrates an engine enclosure 10 and operator's cab 11 mounted on a rotatable upper unit 12 of a hydraulic excavator (not fully shown). The upper unit comprises a base 13 having an engine and related working components (not shown) mounted thereon and disposed within the enclosure to be protected thereby. The base has a framework secured thereon, including a plurality of upright support members 14 (one shown) suitably disposed around the periphery of the base.

Access to the engine may be achieved by selectively opening access means, such as doors 15 and 16 hingedly mounted on the enclosure by vertically disposed hinge means 17 and 18, respectively. Since some of the working components are positioned below the doors, a pair of side panels 19 and 20 are removably attached on the enclosure to provide ready access

thereto. It should be understood that the hereinafter described attachment means for the panels is duplicated at both ends of panels 19 and 20, as well as at the ends of other side panels comprising the enclosure.

Referring to FIGS. 2 and 3, panels 19 and 20 are disposed on the frame to have opposed ends thereof positioned closely adjacent to support member 14. The support member preferably comprises a standard channel having a U-shaped cross-section to define outwardly extending and parallel legs 21 and 22. A horizontally disposed plate 23, secured to a lower end of the support member, is releasably attached to base 13 by a bolt 24.

A lateral end of panel 19 substantially overlies the support member and an L-shaped angle bar or first support bracket has a first flange 25 thereof secured to an inner surface of the panel. A second flange 26 of the bracket extends inwardly to overlie leg 21 of the support member. The second flange is releasably attached to the leg by fastening means, such as self-tapping fasteners 27.

Panel 20 comprises a plurality of horizontally disposed and downwardly slanted louvers 28 having their ends secured together by longitudinally spaced side plates 29 (one shown). The illustrated side plate is preferably disposed closely adjacent to an end flange 30 of panel 19. A flat plate or second support bracket 31 has its outer end secured to panel 16 and its inner end releasably attached to leg 22 of support member 14 by fastening means, such as self-tapping fasteners 32.

As clearly shown in FIG. 3, disposition of fastening means 27 and 32 interiorly of enclosure 10 prevents inadvertent removal thereof. In addition, a substantially flush relationship is presented by the exterior surfaces of longitudinally aligned panels 19 and 20. Access to working components mounted upwardly in the enclosure can be achieved by opening doors 15 and 16. Access to the working components mounted below the doors can be expeditiously achieved by merely removing fasteners 27 and 32 and similar fasteners (not shown) releasably attaching the opposite ends of panels 19 and 20 to the vehicle's frame structure. Alternatively, such opposite ends could be hingedly mounted on the frame structure by the type of hinge means shown at 17 and 18 in FIG. 1.

I claim:

1. An engine enclosure mounted on a mobile vehicle comprising:

a frame, including a support member,
a pair of panels disposed on said frame to have opposed ends thereof positioned closely adjacent to said support member,
fastening means releasably attaching the ends of said panels to said support member, interiorly of said enclosure, and
openable access means on said enclosure for selectively exposing said fastening means to facilitate expeditious removal of said panels, said openable access means comprising a pair of doors each hingedly mounted on said enclosure, vertically above a respective one of said panels.

2. The enclosure of claim 1 wherein at least one of said panels has means forming a plurality of louvers thereon.

3. The enclosure of claim 2 wherein said support member comprises an upright U-shaped channel member, said panels each having a bracket secured thereon

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and releasably attached to opposite sides of said channel member.

4. The enclosure of claim 3 wherein one of said brackets constitutes an L-shaped angle bar and the other bracket constitutes a flat plate.

5. The enclosure of claim 1 wherein said fastening means comprise vertically spaced, self-tapping fasteners.

6. An engine enclosure mounted on a mobile vehicle comprising:

a frame, including a support member comprising an upright U-shaped channel member,
a pair of panels each having a bracket secured

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thereon and disposed on said frame to have opposed ends thereof positioned closely adjacent to said support member,

means forming a plurality of louvers on at least one of the panels,

fastening means releasably attaching said brackets to opposite sides of said support member, interiorly of said enclosure, and

openable access means on said enclosure for selectively exposing said fastening means to facilitate expeditious removal of said panels.

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